

APPENDIX B

STATEMENT OF WORK FOR REMEDIAL DESIGN, REMEDIAL ACTION, AND POST-REMEDIATION MONITORING

WHITE KING/LUCKY LASS SUPERFUND SITE FREMONT NATIONAL FOREST LAKEVIEW, OREGON

I. INTRODUCTION

The White King/Lucky Lass Mines site consists of two former uranium mining areas located in south-central Oregon, approximately 17 miles northwest of Lakeview, Oregon. The Mines site encompasses approximately 140 acres affected by uranium mining activities. The major features at the White King Mine include a water-filled excavation pit covering 13.4 acres (pond), a protore stockpile covering 17 acres, an overburden stockpile covering 24 acres, areas where overburden and ore were dumped or spilled during the mining operations including haul roads, and Augur Creek which flows adjacent to the two White King stockpiles. The stockpiles contain soil and mineralized rock that were removed from the mine pit. The major features at the Lucky Lass Mine include a 5 acre water-filled excavation pit (pond), a 14 acre overburden stockpile, and an adjacent meadow. The Record of Decision (ROD) addresses contaminated soils, waste rock, and ground water at the White King and Lucky Lass Mines, and contaminated water and sediments at the water filled excavation pit (pond) located at the White King Mine. The selected remedy includes consolidating and covering of the most highly contaminated soils from both mines at the White King Mine area and continued neutralization of the acidity in the White King pond. EPA requires the Settling Defendants to perform the work outlined in this SOW.

II. PURPOSE

The purpose of this Statement of Work is to set forth requirements for implementation of the Remedial Design (RD), Remedial Action (RA), and post-remediation monitoring of the Remedial Action set forth in the ROD, which was signed by the Regional Administrator of the United States Environmental Protection Agency (EPA), Region 10 on September 28, 2001. The Settling Defendants shall follow the ROD, the SOW, the approved Remedial Design documents, the approved Remedial Action Work Plan, the approved Monitoring and Reporting Work Plan, EPA Superfund Remedial Design and Remedial Action Guidance, and any additional guidance provided by EPA in submitting deliverables for designing, implementing, and monitoring the Remedial Action at White King/Lucky Lass Site.

III. DESCRIPTION OF THE REMEDIAL ACTION AND PERFORMANCE STANDARDS

The Settling Defendants shall design and implement the Remedial Action to meet the Performance Standards and Remedial Action Objectives (RAOs) set forth in the ROD. Performance Standards are requirements that are used to measure the achievement of the RAOs and include, but are not limited to, the remediation levels established in Section 12 of the ROD, the Statutory Determinations and ARARS in Section 13 of the ROD, and the monitoring of the remedial action identified in Section 12 of the ROD. The RAOs which are set forth in Section 8 of the ROD are as follows:

RAOs

Section 12 of the ROD established Remedial Action Objectives (RAOs) for the White King/Lucky Lass Site under current and future use scenarios. These RAOs are as follows:

White King Soils

- Reduce exposure to stockpiles and contaminated off-pile soil by humans (ingestion and external exposure) and ecological receptors (ingestion). Demonstrate protectiveness to an excess risk level of 1×10^{-6} for carcinogenic risk (or a non-cancer HQ of 1¹) based on reasonable maximum exposure for an individual, the acceptable risk levels under OAR 340-122-040, or background concentration whichever is higher.
- Reduce and eliminate the release and migration of contaminants from soils to ground water or surface water via erosion, oxidation, or leaching to protect for beneficial uses (recreational, agricultural, and aquatic habitat).
- Prevent the removal or use of stockpile soils for any purpose.

White King Pond

- Protect the potential beneficial use(s) (aquatic life) of the White King pond from exposure to Contaminants of Concern (COCs) above applicable standards (Oregon's

¹Oregon Department of Environmental Quality's cleanup rules require protectiveness to a Hazard Index (HI) of 1.

State water quality standards (OAR 340-41-925), or background concentrations (if background concentrations are higher than the applicable standard).

- Maintain a neutral pH in the White King pond water in order to reduce the toxicity of the acidic water and lower the concentrations of dissolved metals in the water.

Augur Creek

- Reduce the exposure of aquatic invertebrates and recreational users to COC's in Augur Creek surface water and sediments above protective risk-based levels for recreational users, applicable standards (Oregon's State water quality standards (OAR 340-41-925), or background concentrations (if background COC concentrations are higher than the applicable standard or protective level).
- Monitor surface water to ensure that the potential beneficial uses of surface water (discussed in the next section) are maintained and/or to establish a trend toward background concentrations.

White King Mine Ground Water

- Prevent any human exposure and future use of ground water beneath the stockpile with contaminant concentrations in excess of Federal and State drinking water standards or protective levels.
- Monitor ground water upgradient and downgradient of the stockpile to ensure that the potential beneficial uses of ground water (discharge to surface water) meet applicable standards (Oregon's State water quality standards (OAR 340-41-925) at the boundary of the waste management area with Augur Creek and/or to establish a trend toward background COC concentrations.

Lucky Lass Soils

- Prevent direct contact with the contaminated soils to reduce potential risks from incidental soil ingestion and threat from external radiation exposure.
- Prevent any future use of stockpile soils with contaminant concentrations in excess of protective levels.

Lucky Lass Mine Groundwater

- Monitoring ground water upgradient and downgradient of the stockpile to ensure that the potential beneficial uses of groundwater (discharge to surface water) meet applicable standards (Oregon's State water quality standards (OAR 340-41-925) at the boundary of the waste management area with Augur Creek and/or to establish a trend toward background concentrations.
- Prevent any human exposure and future use of ground water beneath the stockpile with contaminant concentrations in excess of Federal and State drinking water standards or protective levels.

The Selected Remedy will achieve RAOs through a combination of consolidation and capping of contaminated soils, neutralization of pond water, and institutional controls. Monitoring will be conducted on surface water, ground water, and sediment to insure the remedy is protective.

Remedial Action

The Settling Defendants shall design and implement the Remedial Action to meet the Performance Standards in order to meet the Remedial Action Objectives (RAOs) and other specifications set forth in the ROD and this SOW. To assess the effectiveness of the RA, an Operation, Monitoring and Reporting Plan will be developed that includes specific post-remediation monitoring and data requirements. The key goals of the environmental monitoring program will be to evaluate the effectiveness of remedial actions and evaluate progress towards achievement of Performance Standards and RAOs. The monitoring will also provide data for EPA to conduct the CERCLA-required five-year reviews. The purpose of the five-year review is to determine if the remedy is functioning as intended by the decision documents, to determine if the exposure assumptions toxicity values, and cleanup levels are still valid, and to determine if any other new information has been identified that could call into question the protectiveness of the remedy. The monitoring program will be periodically evaluated and the frequency and/or number of monitoring locations may be reduced or eliminated, with EPA approval.

The Remedial Actions for specific areas of the site are described below.

White King Stockpiles

- Recontour the protore² stockpile at the White King Mine so it is out of the Augur Creek 500 year floodplain. Approximately 135,000 cubic yards of the protore

² Protore is a mining term for low-grade mineralized materials surrounding an ore. This term was originally used to describe one of the stockpiles at the Mines site. The results of subsequent investigations indicated that both stockpiles consist of overburden (material removed to reach the ore), however, the original terminology was retained to be consistent with previous reports.

stockpile will be moved and regraded; This Stockpile, after addition of contaminated soils, is referenced herein as the “consolidated stockpile”.

- Excavate the overburden stockpile at the White King Mine and contaminated soils which are above background concentrations and exceed health based protective levels in the vicinity of the White King mine that have been identified by gamma surveys. These areas are portions of Augur Creek adjacent to the stockpile, the haul road, and other areas referred to as “off-pile,” in Drawing 020 of the Remedial Design. These soils will be consolidated into the recontoured protore stockpile described above. Approximately 581,000 cubic yards of overburden will be excavated.
- Isolate the consolidated stockpile under compacted clay-like materials from the Overburden pile and cap with a two-foot thick clean soil cover in order to support native vegetation. The top 4 inches will consist of topsoil/gravel mixture to minimize erosion.
- Implement post-remediation inspection and maintenance of the consolidated stockpile to ensure the remedy remains protective;
- Implement land use restrictions to limit human exposure to contaminated soils underneath the consolidated stockpile cover and underlying groundwater, and uses that could adversely impact the integrity of the consolidated stockpile cover.
- Restrict access by constructing a barb wire fence or other physical barrier surrounding the consolidated stockpile in order to prevent exposure to and disruption or use of the stockpiles materials by human or medium-to-large animals.
- Monitor ground water upgradient and downgradient of the consolidated stockpile and Augur Creek surface water and sediment to ensure that the proposed beneficial uses of ground water (aquatic life and livestock) are maintained and that the remedy is protective.

White King Pond

- Conduct maintenance on the pond in order to raise the pH in the pond water in order to be protective and meet state water quality standards for Goose Lake Basin (requires a pH range of 7-9). Compliance points will be established within the approved monitoring plan.

- Monitor the pond water and biota (as determined by the initial pond study) to determine the effectiveness of pond neutralization, establish trends and further evaluate the risks associated with pond water, seeps, and sediments.
- Conduct a biological assessment of White King Pond in accordance with the White King and Augur Creek Study Workplan. If the results of the study indicate a need for further remedial action to address unacceptable risk to aquatic organisms at the population level which could impact higher trophic levels, such action will be proposed as Additional Work in accordance with Task 6 of this SOW. This action will be documented in an Explanation of Significant Differences (ESD) or ROD amendment.
- Implement access restrictions such as fencing to prevent other beneficial uses of the pond which could pose an unacceptable exposure to sediments in the pond (e.g., recreational use, livestock watering).
- Implement land use restrictions to prevent residential, recreational, or agricultural uses of the pond except that use of water for fire suppression may be allowed in certain circumstances consistent with the Forest Plan Amendment.

Lucky Lass Stockpile

- Excavate soils and waste rock, which are above COC background concentrations and exceed health based protective levels from the Lucky Lass stockpile and off-pile areas (approximately 7,000 cubic yards), and place them into the consolidated stockpile. Remaining overburden material that may exceed Performance Standards will be covered by one foot of cover soil (includes 4 inch top soil mixed with gravel for vegetative cover). [Overburden slopes will be graded sown to a maximum slope of 3H:1V.] Areas identified as natural in place mineralization that exceeds the Performance Standard will be covered with 3 inches of topsoil and revegetated.
- Implement institutional controls to prevent removal or residential use of the remaining Lucky Lass stockpile soils and prohibit installation of drinking water wells within the stockpile.

Post-Remedial Action Monitoring and Reporting

The Settling Defendants shall conduct post-remediation monitoring of the Remedial Action as part of the requirements to be established in the Operations,

Maintenance, and Monitoring Plan (OMMP). Post-remediation monitoring of groundwater, surface water, and sediment shall be performed until RAOs are achieved, as determined by EPA. The long-term effectiveness of the remedy for sediments shall be demonstrated by a reduction in sediment toxicity if necessary to be protective of the beneficial use.

Method Requirements to Demonstrate Performance Standards

The goals and objectives described in Section 8 of the ROD shall be met in soil, surface water, sediment, and groundwater for each area of the Mines site. As stated above the RAOs are considered the overall goal for the project. However, specific method requirements (and associated verification methods and quality control checks) must be identified during Remedial Design to ensure that the Remedial Action is performed in a manner that will achieve RAOs and meet Performance Standards efficiently and effectively. Performance Standards such as cleanup levels, identify the desired results of specific remedial actions, but the remedial action construction contractor will determine the method for meeting the Performance Standards subject to EPA's approval. As an example, for excavation of contaminated soil, performance requirements identify cleanup goals as set forth in the ROD. The method requirements will identify target areas, depths, removal volumes, and type of equipment for removal and cleanup verification to demonstrate that the Performance Standard has been met.

IV. WORK TO BE PERFORMED BY SETTLING DEFENDANTS

The scope of work for this remedial design and remedial action includes the actions identified in the ROD and Section III of this SOW. To accomplish this scope of work, the remedial design/remedial action shall consist of the following eight (8) tasks (unless previously submitted and approved by EPA). The Settling Defendant shall be responsible for implementing additional work elements necessary for successful implementation of the White King/Lucky Lass remedial action. All plans are subject to EPA approval after review and comment by the Forest Service and the State.

- Task 1: Remedial Design Work Plan (already **submitted and approved by EPA**)
- Task 2: Remedial Design Phases
 - A. Preliminary (30%) Design (already **submitted and approved by EPA**)
 - B. Intermediate Design Deliverables (as specified) (already **submitted and approved by EPA**)
 - C. Pre-final (90%) Design/ (100%) Final Design (already submitted and approved by EPA)
- Task 3: Remedial Action Work Plan (already submitted)

Task 4: Remedial Action/Construction

- A. Preconstruction Inspection/Meeting
- B. RA Progress Meetings
- C. Pre-final Construction Inspection
- D. Final Construction Inspection
- E. Reports
 - 1. Remedial Action Construction Report
 - 2. Final Remedial Action Report

Task 5: Performance Monitoring and Construction Quality Assurance

Task 6: Post-remediation Operation, Maintenance & Monitoring

Task 7 Additional Work

Task 8 Assessment of Toxicity of White King Pond Sediments

Additional details on each task are provided below. All documents, including work plans, reports, and memoranda, required under this SOW are subject to EPA approval after review and comment by the Forest Service and the State. Unless otherwise specified by EPA, a draft version of each document shall be submitted to EPA, the Forest Service and the State for review and comment. Within thirty (30) calendar days of receipt of EPA's comments on a draft document, the Settling Defendants shall submit to EPA, the Forest Service and the State a response to comments, proposing revisions to the document. Within fifteen (15) calendar days of EPA response to the proposed revisions, Settling Defendants shall submit a revised final document that reflects EPA comments. This SOW also specifies submittal of certain documentation (e.g., construction progress reports, monthly progress reports) that will be used by EPA for informational purposes only but will not be formally approved by EPA.

Task 1: Remedial Design Work Plan

Settling Defendants have submitted, and EPA approved on March 26, 2004, a Remedial Design Work Plan in accordance with Section VI and Paragraph 11 of the Consent Decree and Section V (Schedule of Deliverables) of this SOW.

Task 2: Remedial Design Phases

The remedial design is generally defined as those activities to be undertaken to develop the final plans and specifications, general provisions, special requirements, and all other technical and procurement documentation necessary to fully implement the remedial action at this Site as described in the White King/Lucky Lass ROD and this SOW. Settling Defendants shall prepare construction plans and specifications to implement the remedial actions at the Site as described in the ROD and this SOW. Plans and specifications shall be submitted in accordance with the schedule set forth in Section V below. Subject to approval by EPA, Settling Defendants may

submit more than one set of design submittals reflecting different components of the remedial action. All remedial design work, including plans and specifications, shall be developed in accordance with EPA's Superfund Remedial Design and Remedial Action Guidance (OSWER Directive No. 9355.0-4A) and shall demonstrate that the remedial action shall meet all objectives of the ROD, Consent Decree, and this SOW, including all Performance Standards. Settling Defendants shall meet regularly with EPA, the Forest Service and the State to discuss design issues.

A. Preliminary Design

Settling Defendants have submitted, and EPA approved, a Preliminary Remedial Design in accordance with Section VI and Paragraph 11 of the Consent Decree and Section V (Schedule of Deliverables) of this SOW.

B. Intermediate Design Deliverables

Settling Defendants have submitted, and EPA has reviewed and commented, on the Intermediate Design Deliverable in accordance with Section VI and Paragraph 11 of the Consent Decree and Section V (Schedule of Deliverables) of this SOW. On January 20, 2005 EPA agreed that comments on this document are to be addressed in the Pre-Final/Final Design Deliverable.

C. Prefinal and Final Designs

Settling Defendants submitted a draft Pre-Final Remedial Design to the EPA, the Forest Service and the State on February 1, 2005. Settling Defendants shall submit the Final Design which reflects EPA comments on the Pre-Final Design no later than April 1, 2005. The Prefinal Design shall fully address all comments made to the preceding design submittal(s). The Final Design shall fully address all comments made to the Prefinal Design and shall include reproducible final drawings and specifications suitable for bid advertisement. The Final Design shall also address any value engineering identified by the proposed construction contractor.

The Prefinal and Final Design submittals shall include those elements listed for the Preliminary Design, as well as the following (unless previously submitted as an Interim Design Element approved by EPA):

1. Draft Construction Quality Assurance Plan (see Task 5 for detail);
2. Draft Water Quality Monitoring Plan, which shall detail water quality monitoring requirements as specified by EPA to confirm that applicable State and Federal water quality standards are met during soil

excavation and capping. The plan shall describe the specific water quality monitoring requirements, including: schedule; sampling locations; intervals; parameters; analytical methods; key contacts; reporting requirements (including daily reports); daily contacts for notifications of all exceedances; result summaries; and draft and final reports. A QAPP/FSP specific to water quality monitoring shall be included in this deliverable.

3. Draft QAPP/ H&SP/FSP for remedial action construction activities (see Task 5);
4. Draft Operation, Maintenance, & Monitoring Plan (See Task 6 for detail);
5. Final project schedule for the construction and implementation of the remedial action which identifies timing for initiation and completion of all critical path tasks. The final project schedule submitted as part of the Final Design shall include specific dates for major milestones and completion of the project.

Task 3: Remedial Action Work Plan

The Settling Defendants shall submit to the EPA, the Forest Service and the State, a Remedial Action Work Plan in accordance with Section VI, Paragraph 12 of the Consent Decree and Section V of this SOW which includes a detailed description of the remediation and construction activities, including how those construction activities are to be implemented by Settling Defendants and coordinated with EPA, the Forest Service and the State. When describing implementation of the remedial action, Settling Defendants shall identify discrete elements of the remedial action for purposes of monitoring construction activities as they occur. The RA Work Plan shall include a project schedule for each major activity and submission of deliverables generated during the remedial action.

Settling Defendants shall submit the following deliverables with submission of the Remedial Action Work Plan (unless previously submitted and approved by EPA):

1. Final Construction Quality Assurance Plan (see Task 5 for detail);
2. Contingency Plan (to address potential releases from the site)

3. Final Water Quality Monitoring Plan (w/ specific QAPP/FSP);
4. Final QAPP/Final H&S Plan/Final FSP for remedial action construction activities (see Task 5); and,
5. Final OMMP

The plans described in this task were submitted to EPA, the Forest Service and the State on April 1, 2005

Task 4: Remedial Action Construction

The Settling Defendants shall implement the remedial action as detailed in the approved Final Design and Final Remedial Action Work Plan. The following activities shall be completed in constructing the remedial action.

A. Preconstruction Inspection and Meeting

The Settling Defendants shall participate with EPA, the Forest Service and the State in a preconstruction inspection meeting to:

1. Review methods for documenting and reporting inspection data, and compliance with specifications and plans including methods for processing design changes and securing EPA approval after review and comment by the Forest Service and the State;
2. Review methods for distributing and storing documents and reports;
3. Review work area security and safety protocol;
4. Demonstrate the construction management is in place, and discuss any appropriate modifications of the construction quality assurance plan to ensure that Site-specific considerations are addressed; and
5. Conduct a Site walk-about to verify that the design criteria, plans, and specifications are understood and to review material and equipment storage locations.

All inspections and meetings shall be documented by a Settling Defendant's designated contact and minutes shall be transmitted to all parties within seven (7) working days of the inspection or meeting.

B. RA Progress Meetings

Settling Defendants shall conduct RA progress meetings on a regular basis throughout the RA. The meetings shall be held at least monthly unless a less frequent schedule is agreed to by EPA, the Forest Service and the State. At a minimum, Settling Defendants shall address the following at progress meetings:

- General progress of construction with respect to RA schedule;
- Problems encountered and associated action items;
- Pending design, personnel or schedule changes requiring EPA approval after review and comment by the Forest Service and the State;
- Results of any RA verification sampling and associated decisions and action items.

C. Prefinal Construction Inspections

Within thirty (30) days after Settling Defendants make preliminary determinations that construction is complete for each discrete element of the remedial action, as defined in the Final Remedial Action Work Plan, the Settling Defendants shall notify EPA, the Forest Service and the State for the purposes of conducting a prefinal inspection.

The prefinal inspections shall consist of a walk-through inspection of the entire completed remedial action element with EPA, the Forest Service and the State. The inspection is to determine whether the project element is complete and consistent with the contract documents and the Remedial Action Work Plan, to review compliance with the CQAP, and to review field changes and change orders, and verify that SQOs have been achieved. The Settling Defendants shall certify that each discrete element of the remedy has been constructed to meet the purpose and intent of the specifications. Retesting shall be completed by Settling Defendants where deficiencies are revealed. Within seven (7) days of the inspection, a prefinal construction inspection letter/report shall be submitted to EPA, the Forest Service and the State. The prefinal construction inspection report shall include both a summary of the major CQAP results and field changes, as well as minutes from the inspection. The prefinal inspection report shall outline the outstanding construction items, actions required to resolve items, completion date for these items, and a proposed date for final inspection. The completion dates for the items identified in the prefinal construction report shall be within thirty (30) days of the prefinal construction inspection unless otherwise agreed to by EPA.

D. Final Construction Inspections

Within thirty (30) days after completion of any work identified in the prefinal inspection reports, the Settling Defendants shall notify EPA, the Forest Service and the State for the purposes of conducting a final inspection of each discrete remedial action element. The final inspection shall consist of a walk-through inspection of each discrete element of the remedial action by U.S. EPA, the Forest Service and the State and the Settling Defendants. The prefinal inspection reports shall be used as a checklist with the final inspection focusing on the outstanding construction items identified in the prefinal inspections. Confirmation shall be made that outstanding items have been resolved. Resolution of all outstanding items shall be documented in a Final Construction Letter/Report within 30 days of the final inspection.

E. Reports

Settling Defendant shall follow EPA guidance for preparing Remedial Action Reports described in "Close Out Procedures for National Priorities List Sites", EPA 540-R-98-016, OSWER Directive 9320.2-09A-P, PB98-963223, January 2000 in submitting the following reports.

1. Remedial Action Construction Report

This report shall be submitted by the Settling Defendants when the construction is complete for all discrete remedial action elements.

Within thirty (30) days of the last successful final construction inspection, Settling Defendants shall submit an Remedial Action Construction Report. In the report, a registered professional engineer and the Settling Defendants' Project Coordinator shall state that the remedial action has been constructed in accordance with the design and specifications. The written report shall include as-built drawings signed and stamped by a professional engineer, and other supporting documentation to demonstrate the CQAP was followed. The report shall contain the following statement, signed by a responsible corporate official of a Settling Defendant or the Settling Defendants' Project Coordinator:

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

2. Remedial Action Completion Report

This report shall be submitted by the Settling Defendants after construction is complete AND ALL Performance Standards have been attained, but where the Operations, Maintenance & Monitoring Plan (OMMP) requirements will continue to be performed.

Within thirty (30) days of a successful demonstration that all Performance Standards have been attained, Settling Defendants shall submit a Remedial Action Completion Report. In the report, a registered professional engineer and a responsible corporate official or the Settling Defendants' Project Coordinator shall state the remedial action has been completed in full satisfaction of the requirements of the Consent Decree. The written report shall include a summary of all information (e.g., post-remediation monitoring data) demonstrating Performance Standards not met (e.g., natural recovery) in the Remedial Action Construction Report have been obtained. The report shall also include documentation not previously submitted with the Remedial Action Construction Report verifying that Performance Standards have been attained. The report shall contain the following statement, signed by a responsible corporate official of a Settling Defendant or the Settling Defendants' Project Coordinator:

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Task 5: Performance Monitoring and Construction Quality Assurance

Performance monitoring shall be conducted to ensure that all Performance Standards are met, including cleanup verification methods and methods for determining compliance with Performance Standards and ARARs. The Construction Quality Assurance Plan under this task shall address all Performance Standards related to the remedial action construction. Long-term maintenance of Performance Standards to be achieved after remedial action construction is completed shall be addressed in the Operations, Maintenance & Monitoring Plan described in Task 6. The Construction Quality Assurance Plan and supporting documents shall provide a mechanism to ensure that all Performance Standards for the remedial action construction are met. Supporting documents to the Construction Quality Assurance Plan shall include:

1. Quality Assurance Project Plan
2. Health and Safety Plan
3. Field Sampling Plan

The required contents of each of these documents is described below.

A. Construction Quality Assurance Plan

Settling Defendants shall submit a Construction Quality Assurance Plan (CQAP) which describes the Site-specific components of the performance methods and quality assurance program which shall ensure that the completed project meets or exceeds all Performance Standards and design criteria, plans, and specifications. The draft CQAP has been submitted with the prefinal (90%) design and the final CQAP and has been submitted with the RA Work Plan. The CQAP shall contain, at a minimum, the following elements:

1. Responsibilities and authorities of all organizations and key personnel involved in the design and construction of the remedial action, including EPA and other agencies.
2. Designation and Qualifications of the Construction Quality Assurance (CQA) Official who is independent of the Supervising Contractor, to conduct a quality assurance program during the construction phase of the project. The CQAP establishes the minimum training and experience of the CQA Officer and supporting inspection personnel.
3. Performance Standards and Methods. The CQAP describes all Performance Standards and methods necessary to ensure implementation of the remedial action construction, including mitigation, in compliance with ARARs and identified site-specific Performance Standards. Performance monitoring requirements shall be stated to demonstrate that best management practices have been implemented for excavation, transportation of soil, and proper cap placement techniques.
4. Inspection and verification activities. The CQAP establishes the observations and tests that will be required to monitor the construction and/or installation of the components of the remedial action. The plan shall include the scope and frequency of each type of inspection to be conducted. Inspections shall be required to measure compliance with environmental requirements and ensure compliance with all health and safety procedures.
5. Sampling activities. The CQAP establishes requirements for quality assurance sampling activities including the sampling protocols, sample size, locations, frequency of testing, acceptance and rejection data sheets, problem identification and corrective measures reports, evaluation reports, acceptance reports, and final documentation.

6. Documentation. Reporting requirements for CQA activities shall be described in detail in the CQA plan. This shall include such items as daily summary reports, inspection data sheets, problem identification and corrective measures reports, design acceptance reports, and final documentation/storage. A description of the provisions for final storage of all records consistent with the requirements of the Consent Decree shall be included.
7. Field Changes. The CQA describes procedures for processing design changes and securing EPA review and approval of such changes to ensure changes conform to Performance Standards, ARARs, requirements of this SOW, are consistent with Cleanup Objectives and are protective of human health and the environment.
8. Final Reporting. The CQA identifies all final CQAP documentation to be submitted to EPA in the Remedial Action Construction Report, or other deliverables and submissions.

B. Quality Assurance Project Plans

The Settling Defendants shall develop Site-specific Quality Assurance Project Plans (QAPP), covering sample analysis and data handling for samples collected in all phases of future Site work, based upon the Consent Decree and guidance provided by EPA. The QAPPs shall be consistent with the requirements of the EPA Contract Lab Program (CLP) for laboratories proposed outside the CLP. The QAPPs shall, at a minimum, include:

Project Description

- Facility Location History
- Past Data Collection Activity
- Project Scope
- Sample Program Design
- Parameters to be Tested and Frequency
- Project Schedule

Project Organization and Responsibility

Data Management Plan

- Describe tracking, sorting, retrieving data
- Identify software for data storage,
- Minimum data requirements & data format
- Data backup procedures

- Submission of data in format(s) acceptable to EPA

Quality Assurance Objective for Measurement Data

- Level of Quality Control Effort
- Accuracy, Precision, and Sensitivity of Analysis
- Completeness, Representativeness, and Comparability

Sampling Procedures

Sample Custody

- Field Specific Custody Procedures
- Laboratory Chain-of-Custody Procedures

Calibration Procedures and Frequency

- Field Instruments/Equipment
- Laboratory Instruments

Analytical Procedures

- Analytical Methods
- Field Screening and Analytical Protocol
- Laboratory Procedures

Internal Quality Control Checks

- Field Measurements
- Laboratory Analysis

Data Reduction, Validation, and Reporting

- Data Reduction
- Data Validation
- Data Reporting

Performance and System Audits

- Internal Audits of Field Activity
- Internal Laboratory Audit
- External Field Audit
- External Laboratory Audit

Preventive Maintenance

- Routine Preventive Maintenance Procedures and Schedules

- Field Instruments/Equipment
- Laboratory Instruments

Specific Routine Procedures to Assess Data Precision, Accuracy, and Completeness

- Field Measurement Data
- Laboratory Data

Corrective Action

- Sample Collection/Field Measurement
- Laboratory Analysis

Quality Assurance Reports

Settling Defendants have submitted a draft QAPP for EPA approval after review and comment by the Forest Service and the State. Final QAPPs, including any addenda, shall be revised in response to EPA comments. The initial QAPP shall be designed to encompass all phases of the project from design to confirmatory sampling, if possible. The initial QAPP shall specify all subsequent QAPP addenda anticipated for future project phases.

C. Health and Safety Plan

The Settling Defendants shall develop a health and safety plan (HSP) which is designed to protect on-Site personnel and area residents from physical, chemical, and all other hazards posed by this remedial action. The safety plan shall develop the performance levels and criteria necessary to address the following areas.

- Facility Description
- Personnel
- Levels of protection
- Safe work practices and safe guards
- Medical surveillance
- Personal and environmental air monitoring
- Personal protective equipment
- Personal Hygiene
- Decontamination--personal and equipment
- Site work zones
- Contaminant control
- Contingency and emergency planning, including SPCC
- Logs, reports, and record keeping

The HSP shall follow EPA guidance and all OSHA requirements as outlined in 29 C.F.R. 1910.120 and 1926. A Final HSP was submitted on April 1, 2005.

D. Field Sampling Plan

The Settling Defendants shall develop a field sampling plan. The Field Sampling Plan shall supplement the QAPP and address all sample collection activities. The Field Sampling Plan shall address all sampling to be conducted during the remedial design where further characterization may be needed. A Final FSP was submitted on April 1, 2005.

Task 6: Operation, Maintenance & Monitoring

Settling Defendants shall submit for EPA approval a post-remedial action Operation, Maintenance, & Monitoring Plan (OMMP) and QAPP (or amendments to the remedial design QAPP). The objectives of the OMMP shall include, but are not limited to the following:

- inspection and maintenance of the Lucky Lass and consolidated stockpiles (capping/vegetation);
- evaluating the effectiveness of Pond neutralization;
- evaluating the long-term effectiveness of source control;
- evaluating the recovery of disturbed areas following soil excavation;
- evaluation of the effectiveness of institutional controls
- evaluation of the overall protectiveness of the remedy

The Settling Defendants shall prepare an OMMP Plan to cover both implementation and post-remediation maintenance and monitoring of the remedial action. An initial draft OMMP Plan was submitted with the Pre-Final (90%) Design. The final OMMP Plan shall be submitted to U.S. EPA, the Forest Service and the State no later than the Remedial Action Work Plan submittal. The final OMMP shall address all comments made to the draft OMMP and shall be subject to EPA approval. After results for each monitoring event are reported, the final OMMP shall be reviewed and revised as necessary, under EPA direction and approval. The OMMP shall evaluate and include the following types of monitoring, as appropriate, to achieve the monitoring objective of each element of the remedial action:

- ground-water chemistry
- surface water chemistry
- evaluation of soil erosion and vegetation coverage

Other types of monitoring may also be identified during the development of the OMMP. The OMMP plan shall be composed of the following elements:

1. Description of normal operation and maintenance:
 - a. Description of tasks to achieve each monitoring objective;
 - b. Description of tasks for maintenance;
 - c. Schedule showing frequency of each OMMP task.
2. Description of routine monitoring and laboratory testing:
 - a. Description of monitoring tasks;
 - b. Description of required data collection (including sample type, number, location and frequency), laboratory tests, and their interpretation;
 - c. Required quality assurance and quality control, SAP, HSP, & FSP (or addenda);
 - d. Schedule of monitoring frequency; and
 - e. Description of verification sampling procedures if Performance Standards are exceeded in routine monitoring.
3. Description of procedures for a request to EPA to reduce the frequency of or discontinue monitoring.
4. Records and reporting mechanisms required:
 - a. Laboratory records;
 - b. Records for post-remediation monitoring costs;
 - c. Documentation to comply with CERCLA 5-year Review Reporting Requirements;
 - d. Reports to State or Federal Agencies.

TASK 7: ADDITIONAL ACTION

If adequate progress is not being made toward achieving Performance Standards and RAOs within a reasonable time period, or if the remedy is otherwise not protective of the environment, a variety of responses may be appropriate. Possible responses include (but are not limited to) performing additional remedial actions, collecting additional data to determine the cause of the failure to recover, establishing institutional controls on activities at the Mines site, and extending the period monitoring. If further action is determined by EPA to be necessary to be protective of the environment, the appropriate type of action shall be determined based on the nature and severity of the failure, and an analysis of alternatives. EPA shall determine whether additional response actions will be conducted, and if additional work is determined to be necessary, such work shall not be implemented without prior approval of EPA.

TASK 8: SEDIMENT CHARACTERIZATION AND TOXICITY STUDY WORKPLAN

The Settling Defendants are conducting a study of White King Pond and Augur Creek in accordance with the approved White King Pond and Augur Creek Study Work Plan. The purpose of the study is to conduct an assessment of the toxicity and bioaccumulation potential of COCs in pond sediments to further assess the risks and feasibility of environmental protection for the proposed beneficial uses (aquatic habitat). Upon completion of the field work, the Settling Defendants will prepare a draft and final report (for each phase of the project), which describes the results and conclusions and recommendations for further study and discuss whether any remedial action is needed to address White King Pond or Augur Creek. The report shall also include recommendations for further study or actions to reduce sediment toxicity. This report shall be subject to review by EPA, the Forest Service and the State and approval by EPA.

Sediment toxicity data shall be analyzed consistent with current State or Federal guidance. The condition of the benthic community shall be analyzed using methods that shall include, but shall not necessarily be limited to, comparisons to areas that are considered to be relatively unimpacted areas of similar habitat (e.g., areas outside of the Mines site that are of similar habitat), as well as spatial and temporal comparisons of community structure within the Mines site. Spatial and temporal evaluations of benthic community structure shall be evaluated through a comparison of successive sets of monitoring data. Benthic community indices shall include taxa richness and abundance as well as other relevant indices.

In conjunction with the study biological standards shall be used to evaluate data and develop alternatives that will achieve the RAOs. Biological standards may be measured by biological tests, such as sediment toxicity tests or analyses of the type and abundance of benthic communities. Physical and chemical conditions may be used to support the evaluations of sediment toxicity and benthic community structure. Any reference stations selected for the purpose of comparisons to on-Site biological tests will be determined as part of the workplan.

V. SCHEDULE OF DELIVERABLES

The schedule for notification to EPA or submission of major deliverables to EPA, the Forest Service and the State is described below. If the date for submission of any item or notification required by this SOW occurs on a weekend or state or federal holiday, the date for submission of that item or notification is extended to the next working day following the weekend or holiday.

#	Submission	Due Date
1.	Final Remedial Design (100 percent)	April 1, 2005
2.	Final White King Pond and Augur Creek Study Report	As specified in the approved workplan
3.	Monthly Progress Reports	On or before the 10 th day of each month.
9.	Notification for Remedial Action Start	Provide notification to EPA thirty (30) days prior to initiation of fieldwork to allow EPA to coordinate field oversight activities
10.	Final Remedial Action Work Plan incl. Final CQAP, Water Quality Monitoring Plan, Final QAPP/HSP/FSP, Final OMMP (unless submitted earlier)	April 15, 2005 (Draft submitted on February 28, 2005)
11.	Award Remedial Action Construction Contractor(s)	Within thirty (30) days after approval of the Final Remedial Design submittal
12.	Pre-Construction Inspection and Meeting	Sixty (60) days after award of RA Construction Contractor(s)
13.	Initiate Construction of Remedial Action	Start ten (10) days after EPA coordination of field oversight activities assuming no weather delays and all agency approvals are in place.
15.	Pre-final Construction Inspection/Meeting	No later than thirty (30) days after completion of construction for each discrete element of the remedial action, depending on availability of government representatives
16.	Pre-final Construction Inspection Letter/Report(s)	Within seven (7) days after the prefinal construction inspection for each discrete element of the remedial action
17.	Final Construction Inspection(s)	Within thirty (30) days after completion of work identified in each prefinal construction inspection letter, depending on availability of government representatives

	Completion of Construction	As specified in the approved Remedial Action Work Plan.
18.	Operation, Maintenance & Monitoring Plan	No later than Remedial Action Work Plan submittal
19.	Final Construction Letter/Report(s)	Within thirty (30) days after each final construction inspection/meeting
20.	Pre-certification Inspections	Within thirty (30) days after each of: Remedial Action Construction, Remedial Action Completion, and Completion of Work has been fully performed., depending on availability of government representatives
21.	Remedial Action Construction Report	Within thirty (30) days after pre-certification inspection (may be combined with the Remedial Action Completion Report)
22.	Remedial Action Completion Report	Within thirty (30) days after Performance Standards have been obtained